Ocean Research Report

EXPEDITION #11
r/v Regina Maris
Mazatlan - La Paz, Mexico

15 November - 23 December 1978

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and Education Society, Inc.
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MARINE MAMMALS IN THE SEA OF CORTEZ

DURING NOVEMBER AND DECEMBER OF 1978

Cruise Report of

r/v REGINA MARIS EXPEDITION #11
Mazatlan - La Paz, Mexico
15 November - 23 December 1978

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Prepared for Publication by Judith Perkins

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Marine mammals are an integral part of their ecosystems and they represent a resource whose adequate management in the Gulf of California or in the Sea of Cortez is essential to know and to quantify. This was the goal of Expedition #11 of r/v REGINA MARIS, which took place between 15 November and 23 December 1978. The results are as follows.

r/v REGINA MARIS sailed from Mazatlan, Mexico on 15 November beginning her 6-week cruise in the Sea of Cortez (Fig. 1) with the aim of identifying the marine mammal species in the area. In general, it is thought that populations of sea lions (Zalophus californianus) and various species of cetaceans are residential in this area. These waters open into the southern Pacific Ocean and thus offer these and other species the opportunity to emigrate into and out of this area on a seasonal basis. "Residence" implies habitat occupation all year by species or by individuals (in keeping with the strict definition of this concept). As a result, there is an imperious need, during the different seasons, to evaluate the components of this masto-zoological complex. Cruises which study marine mammals should be made 4 times each year, at least once during each season.

The following list of species is in no way exhaustive, and can only be considered representative of the fauna of marine mammals in the Sea of Cortez during November and December, 1978.

Megaptera novaeangliae (Borowski), humpback whale

Many sources report that the arrival of humpback whales on the breeding and calving grounds occurs as early as December. We have reports that, in November, some humpbacks arrive at their breeding areas around Hawaii.

With the goal of documenting the precise arrival times of these groups on their respective calving grounds, we surveyed the waters surrounding Isla Isabel as well as the bank to the west of the island on 16 and 17 November. A similar survey was made around Isla del Espiritu Santo on 20,22 and 23 November. No humpback whales were seen. We concluded that it was too early in the season for the arrival of any significant number of them. We explored again the environs of Isla del Espiritu Santo on 18,19 and 20 December and saw only one large whale, approximately 16 kms to the west of Isla Partida. We were unable to identify the species, but think it may have been a humpback. Again, we presume it may have been too early for their arrival. The search for this whale must be continued with greater preciseness in the near future. This is a unique whale: its exploitation in the past has been intense and it is a species that is in a state of danger of extinction.

Physeter catodon (Linnaeus), sperm whale

Strandings of sperm whales in the Sea of Cortez have not been an uncommon occurence: R. Gilmore reports that this species has been seen stranded on several occasions. In August, 1978, one ran aground on San Jose Island and the skull of this specimen was observed during Expedition #11 of r/v REGINA MARIS. K. Balcomb and V. Costello observed

another similar case in September, 1976 (unpublished data) and at the end of January, 1979, 52 of these animals stranded themselves on the beaches around Punta Chivato, approximately 16 kms north of Mulege, Baja California Sur. Because of the great quantity of animals involved, this is the most spectacular sperm whale stranding known to date. It indicates that the population of this species in the Sea of Cortez is large and that it can be found there during most of the year. It is, however, not known for certain where the individuals congregate and reside, or if they are residents during the entire year. It is very important that these whales be studied very carefully to determine their relationship to groups of sperm whales in the North Pacific because numbers of the latter are in an alarming decline (International Whaling Commission, 1978 Meeting).

Balaenoptera physalus (Linnaeus), finback whale

Finback whales are seen in the Sea of Cortez most of the year and are considered residents. During mid-December we saw the finbacks in the vicinity of Puertecitos and Guaymas in 100 fathom deep waters (Fig. 2). If we consider each observation independently, at least 30 fin whales, including 1 calf, were seen in the Sea of Cortez during Expedition #11. At another time, B. Villa observed about 50 whales of this species in the Guaymas Bay vicinity as well as others in the Rosa Island vicinity. The weather interfered with line transects and, therefore, our population estimates for this species are not accurate. We presume, however, that the actual number of fin whales in the study

area is substantially higher than our sightings indicate. It is worthwhile noting that on 30 April 1976, approximately 50 fin whales were seen in the vicinity of Guaymas Bay (Fig.7).

Balaenoptera acutorostrata, (Lacepede), minke whale

We saw only 1 minke whale in the middle of the Gulf (Fig. 3). It approached the bow of the ship to within 8 m as if it were curiously examining us. The white bands on the pectoral fins were evident. In general, weather conditions were poor for observing minke whales.

Globicephala macrorhynchus, (Gray), pilot whale

We found many concentrations of pilot whales in deep waters along the western half of the Sea of Cortez (Fig. 3). We counted hundreds of these whales in concentrations averaging 30 individuals, including both sexes and all ages. Many had skin marks clearly differentiated by pigmentation or wounds, which suggested to us that these marks were made by other species. Mackintosh and Wheeler (1929), Mackintosh (1942), and Omura (1950) refer to these marks as wounds and scars and consider them frequent on the bodies of other whales.

Delphinus delphis (Linnaeus), common dolphin

These dolphins were seen in large groups and frequently accompanied other whale species (Fig. 4). They were found in concentrations of more than 1000 animals. The species seems to have a widespread distribution in the Sea of Cortez, as evidenced by their presence through-

out the area. The criss-cross pigmentation patterns were subtle compared with those of the same species along the western coast of Baja California. It is not known if these patterns correspond to racial differences or to seasonal variations within the same population.

Zalophus californianus (Lesson), California sea lion

Sea lions were observed in many areas of the Gulf (Fig. 5). When we saw them at sea, they were frequently associating with cetaceans. The population in the Gulf is resident throughout the year and numbers in the thousands.

Unidentified cetaceans

Figure 6 shows the cetaceans that we were unable to identify by species.

FORMER SIGHTINGS

Those species which were identified during Expedition #11 are considered to be representative of the marine mammal fauna during the months of November and December. This report includes Bernardo Villa's sightings during other months of 1976 and 1977 as follows.

Orcinus orca (Linnaeus), killer whale

Only 2 killer whales were seen in the Sea of Cortez, half-way between Isla Angel de la Guarda and Isla Patos in June 1976 (Fig. 7). This giant of the dolphin family can reach up to 10 m in length, and in its constant search for food it is known to eat a wide variety of marine organisms: penguins, seals, squid, fish, and even other whales,

dolphins, and tuna-fish. There are verbal reports of killer whales seen in larger groups during different seasons of the year.

Balaenoptera edeni (Anderson), Bryde's whale

One individual, moving slowly, was observed on the north shore of Isla Rosa in calm waters for a half day in April,1976. It was identified from a photograph taken by an observer in a small boat near the whale.

OCEANOGRAPHY

Roden (1962) describes the Gulf of California as a great region of evaporation, which in its extreme south has open communication with the Pacific Ocean. The surface temperature varies between 14°C and 21°C in February and between 20°C and 31°C in August. The climate is more continental than oceanic. For the oceanographic data, see the graphs on the respective maps (Figs. 8 and 9). The changes from summer to winter can be interpreted with the relatively warm superficial waters over the thermocline from 40 to 50 metres, pushed toward the south in December by the strong northeast winds, causing low temperatures on the surface and surges along the eastern Gulf Coast. Consequently, the mastozoological fauna that we observed is representative of summer as well as winter conditions in the Sea of Cortez.

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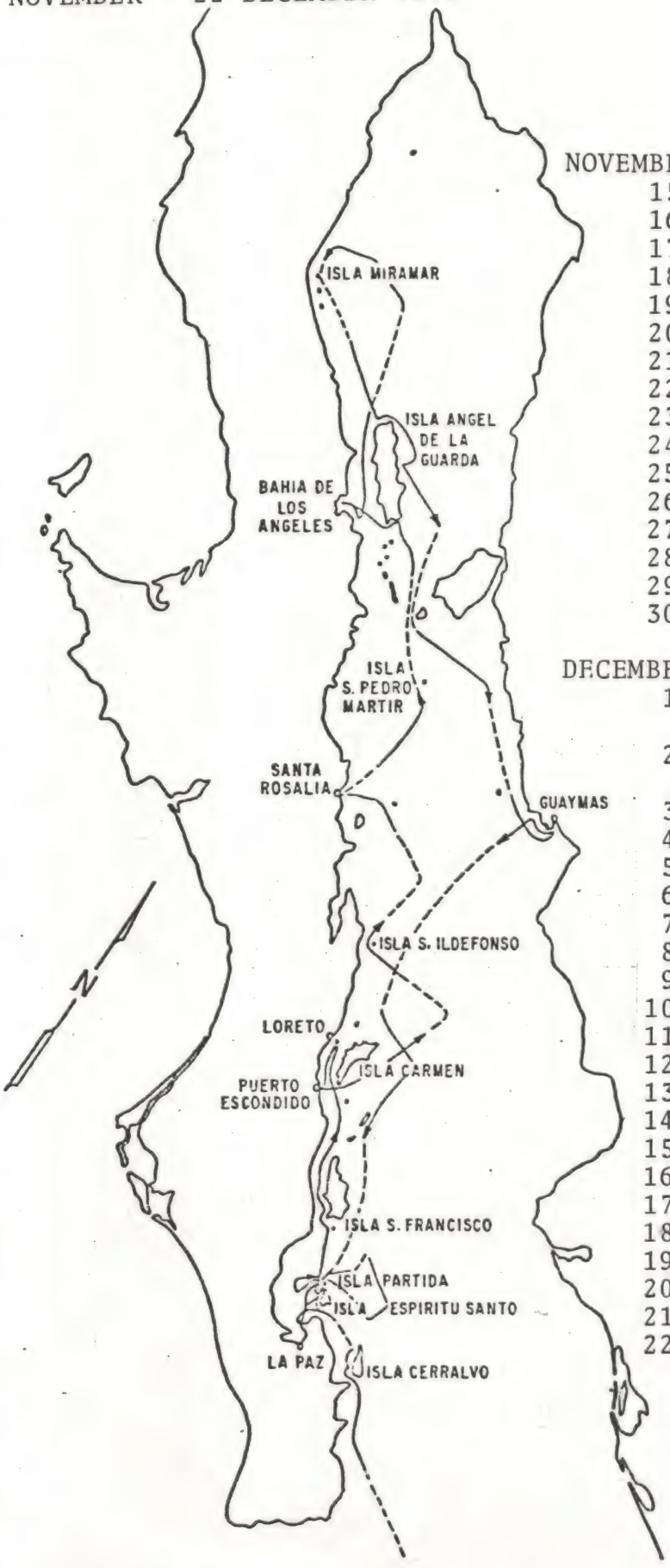
EXPEDITION TO THE SEA OF CORTEZ

15 NOVEMBER - 22 DECEMBER 1978



	ITINERARY	WEATHER
NOVEMBER		
15	Leave Mazatlan	Good
16	Arrive Isla Isabel	Excellent
17	Near Isla Isabel	Good
18	En Route to La Paz	Good
19	En Route to La Paz	Poor
20	Arrival Isla Cerralvo	Good
21	La Paz	Good
22	Isla Espiritu Santo	Excellent
23	Isla Partida	Excellent
24	Isla San Francisco	Excellent
25	Isla San Jose	Good
26	Loreto	Normal
27	Puerto Escondido	Poor
28	Golfo Inferior	Poor
29	Near Isla Ildefonso	Poor
30	Santa Rosalia	Poor
DECEMBER		
1	Near Isla San Pedro Martir	Good
2	Isla Angel de la Guarda	Poor
3	Bahia de Los Angeles	Poor
4	Bahia de las Animas	Poor
5	Canal de Ballenas	Excellent
6	Golfo Superior	Bad
7	Isla Miramar	Poor
8	Puerto Refugio	Poor
9	Puerto Refugio	Poor
10	Ensenada Pulpito	Poor
11	Midriff	Poor
12	Middle of the Gulf	Normal
13	Guaymas	Normal
14	Guaymas	Excellent
15	Guaymas	Normal
16	Off Guaymas	Good
17	Off Isla Carmen	Excellent
18	Off Isla Partida (W)	Excellent
19	Off Isla Partida (E)	Excellent
20	Isla Partida	Poor
21	Isla Partida	Poor
22	La Paz	Poor

Fig. 1. Cruise Track of r/v REGINA MARIS, Expedition #11

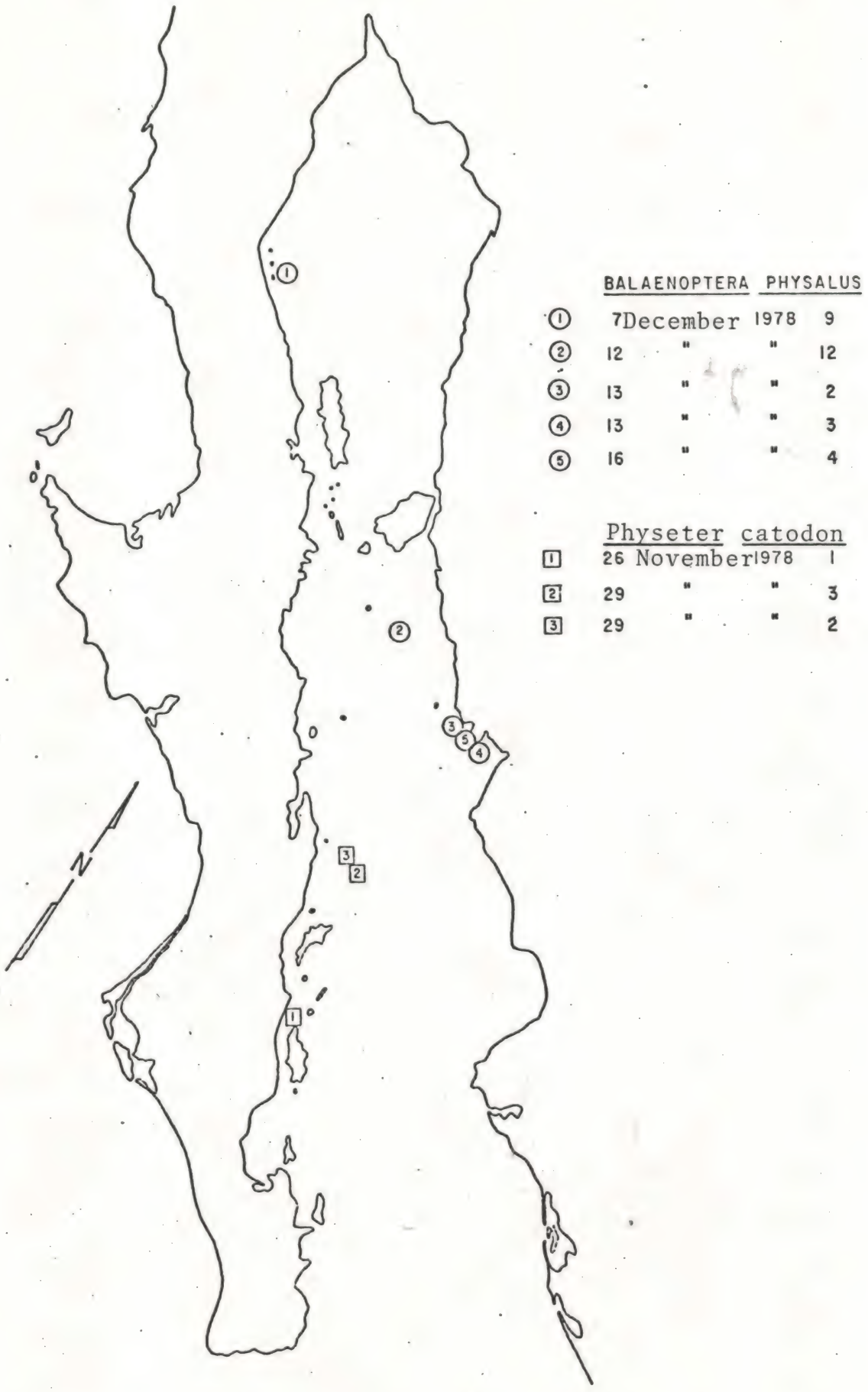


Fig. 2. Sightings of B. physalus and P. catodon.

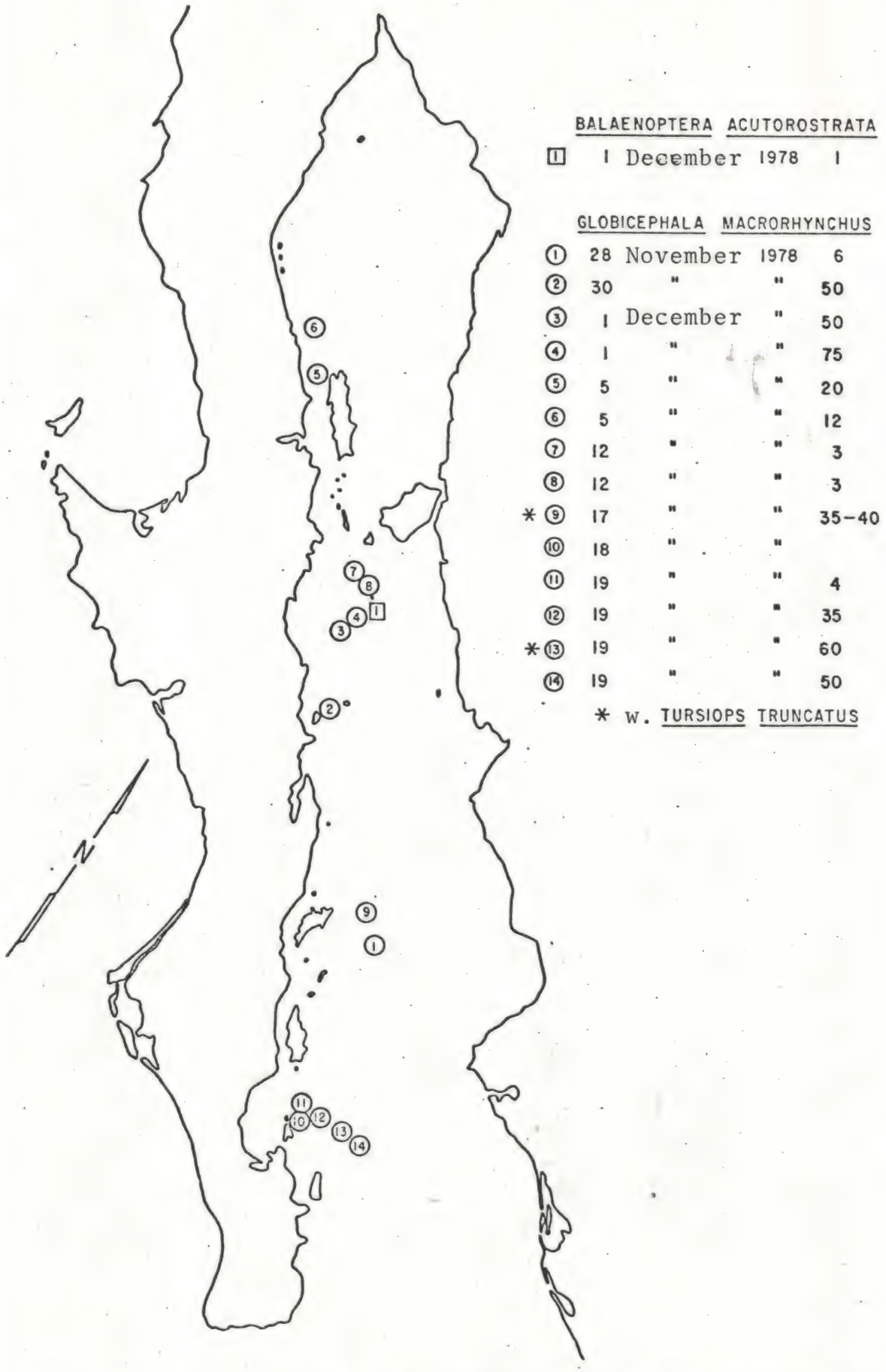
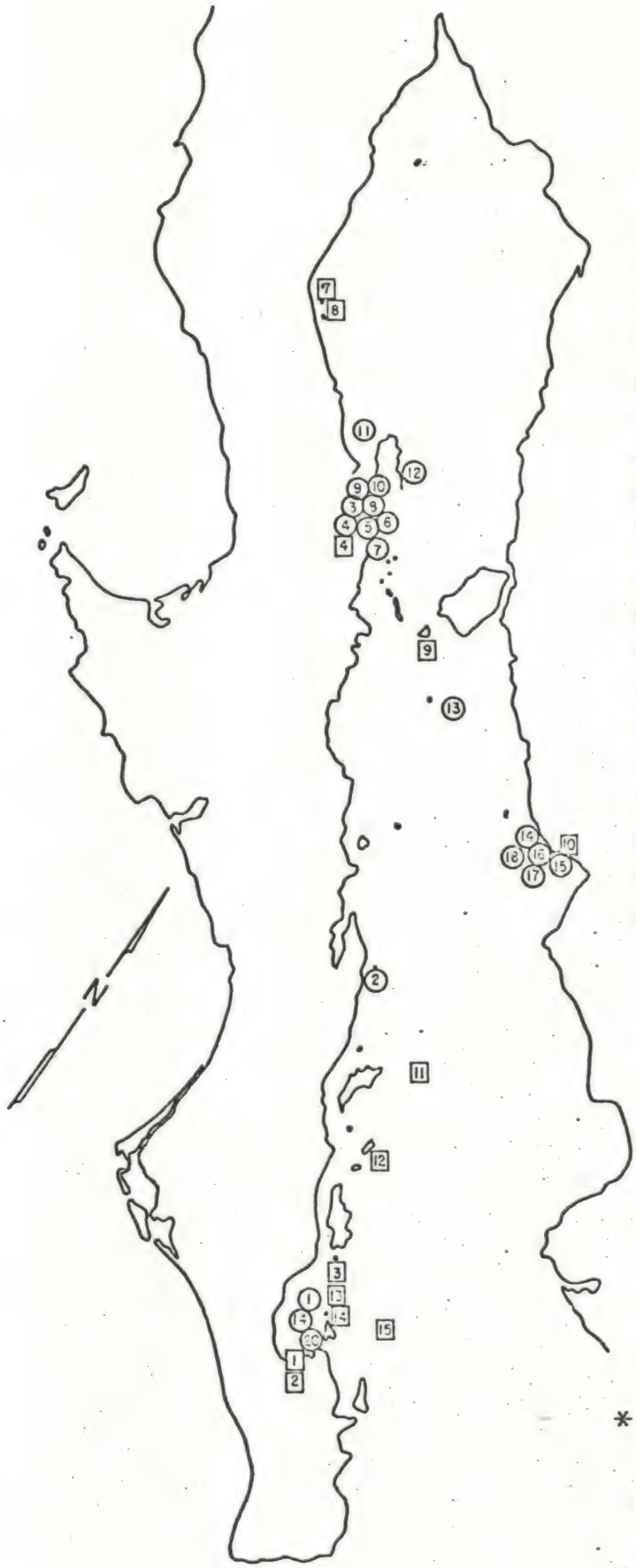


Fig. 3. Sightings of B. acutorostrata and G. macrorhynchus.



DELPHINUS DELPHIS

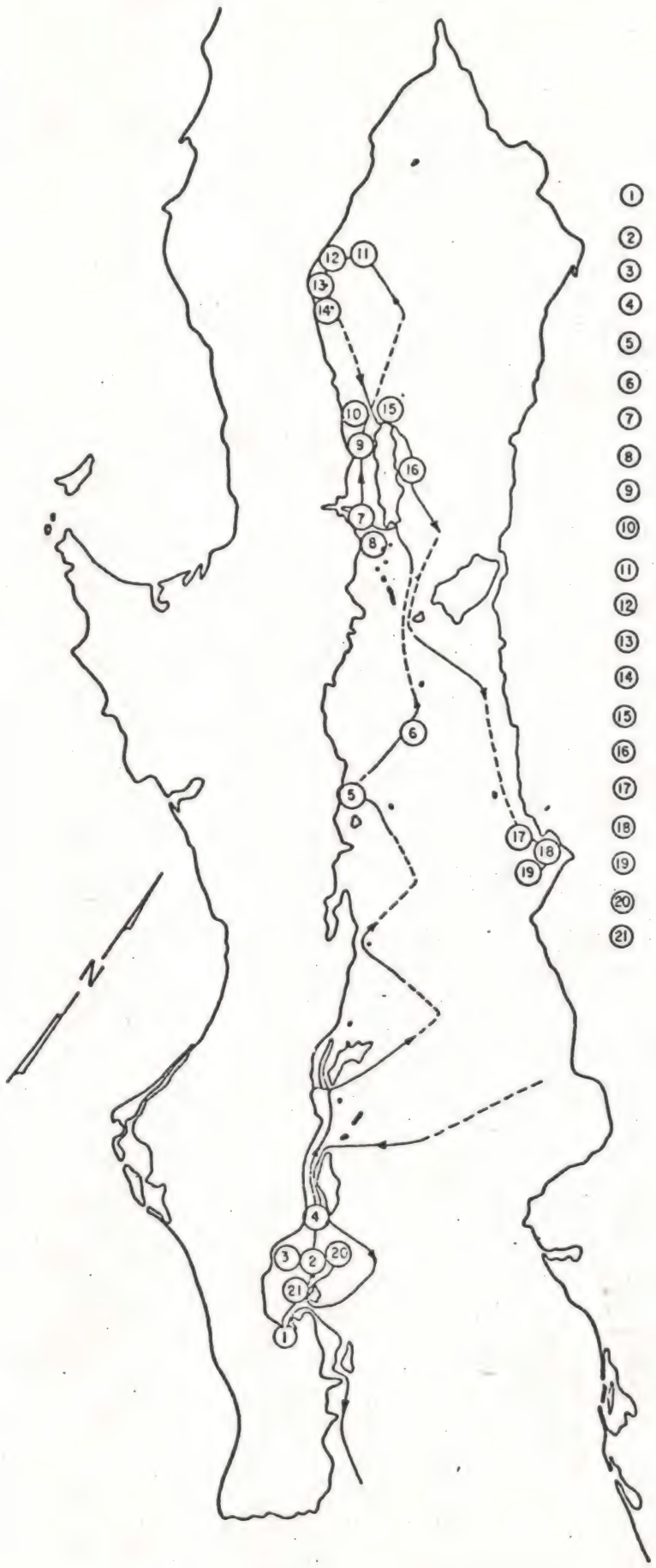
①	24	November	1978	500
②	29	"	"	13
③	3	December	"	12
④	4	"	"	15
⑤	4	"	"	18
⑥	4	"	"	35
⑦	5	"	"	30
⑧	5	"	"	12
⑨	5	"	"	6
⑩	5	"	"	40
⑪	5	"	"	40
⑫	11	"	"	7
⑬	12	"	"	100
⑭	13	"	"	1000
⑮	15	"	"	7
⑯	16	"	"	30
⑰	16	"	"	200
⑱	16	"	"	1000
⑲	18	"	"	1000
⑳	21	"	"	30

TURSIOPS TRUNCATUS

[1]	21	November	1978	5
[2]	21	"	"	2
[3]	24	"	"	2
[4]	3	December	"	2
[5]	4	"	"	3
[6]	6	"	"	20
[7]	7	"	"	20
[8]	7	"	"	2
[9]	12	"	"	7
[10]	13	"	"	1
* [11]	17	"	"	70
[12]	17	"	"	6
[13]	18	"	"	7
[14]	18	"	"	35
* [15]	19	"	"	8

* W. GLOBICEPHALA MACRORHYNCHUS

Fig. 4. Sightings of D. delphis and T. truncatus.



ZALOPHUS

①	22	November	1978	1
②	24	"	"	150
③	24	"	"	2
④	25	"	"	6
⑤	30	"	"	1
⑥	1	December	"	2
⑦	4	"	"	50
⑧	5	"	"	25
⑨	5	"	"	1
⑩	5	"	"	1
⑪	6	"	"	1
⑫	6	"	"	3
⑬	7	"	"	3
⑭	7	"	"	3
⑮	10	"	"	517
⑯	11	"	"	8
⑰	13	"	"	1
⑱	13	"	"	1
⑲	16	"	"	5
⑳	18	"	"	150
㉑	18	"	"	?

Fig. 5. Sightings of Zalophus.

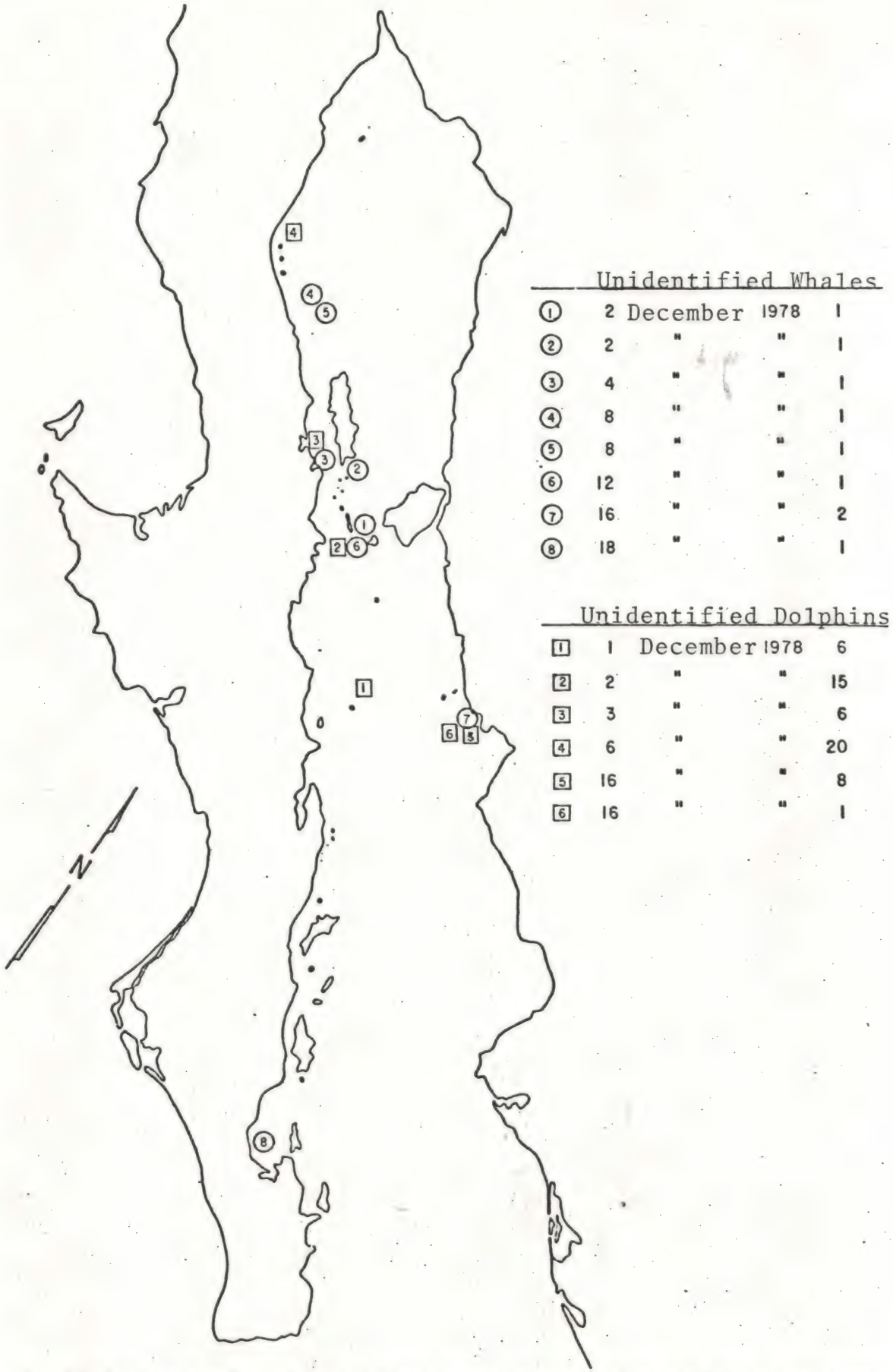


Fig. 6. Sightings of unidentified species of whales and dolphins.

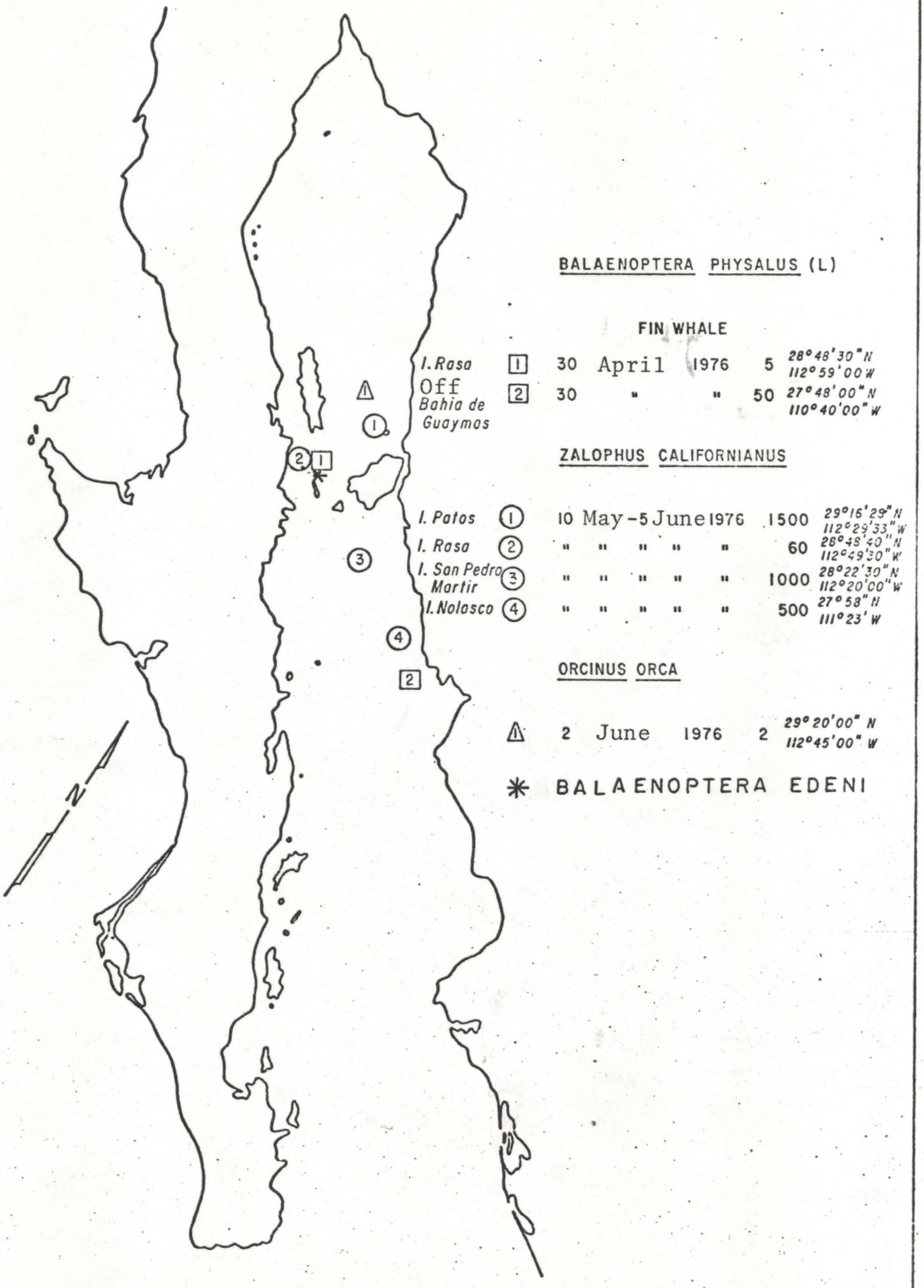


Fig. 7. Sightings of B. physalus and Z. californianus and O. orca.

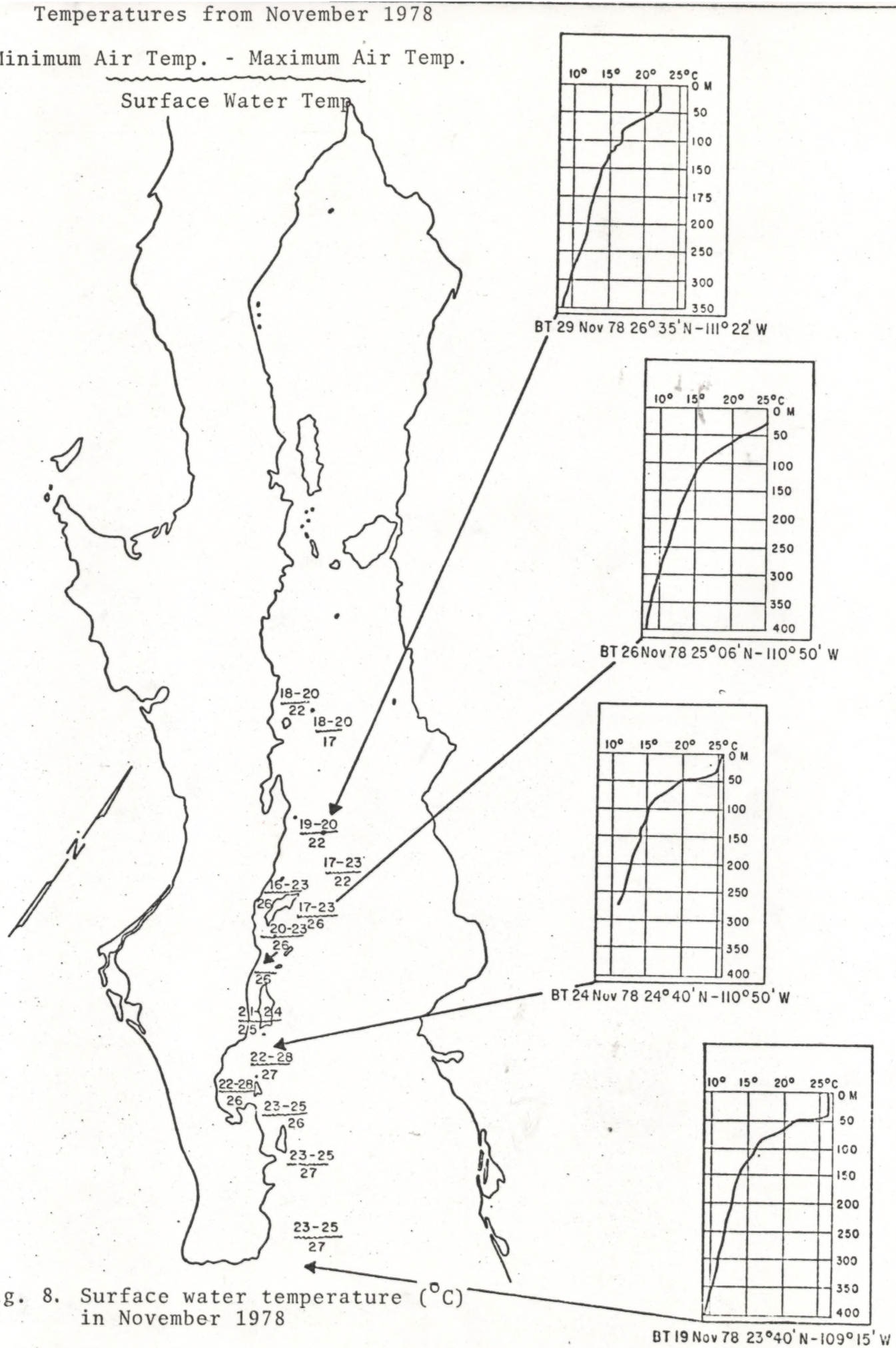


Fig. 8. Surface water temperature (°C) in November 1978

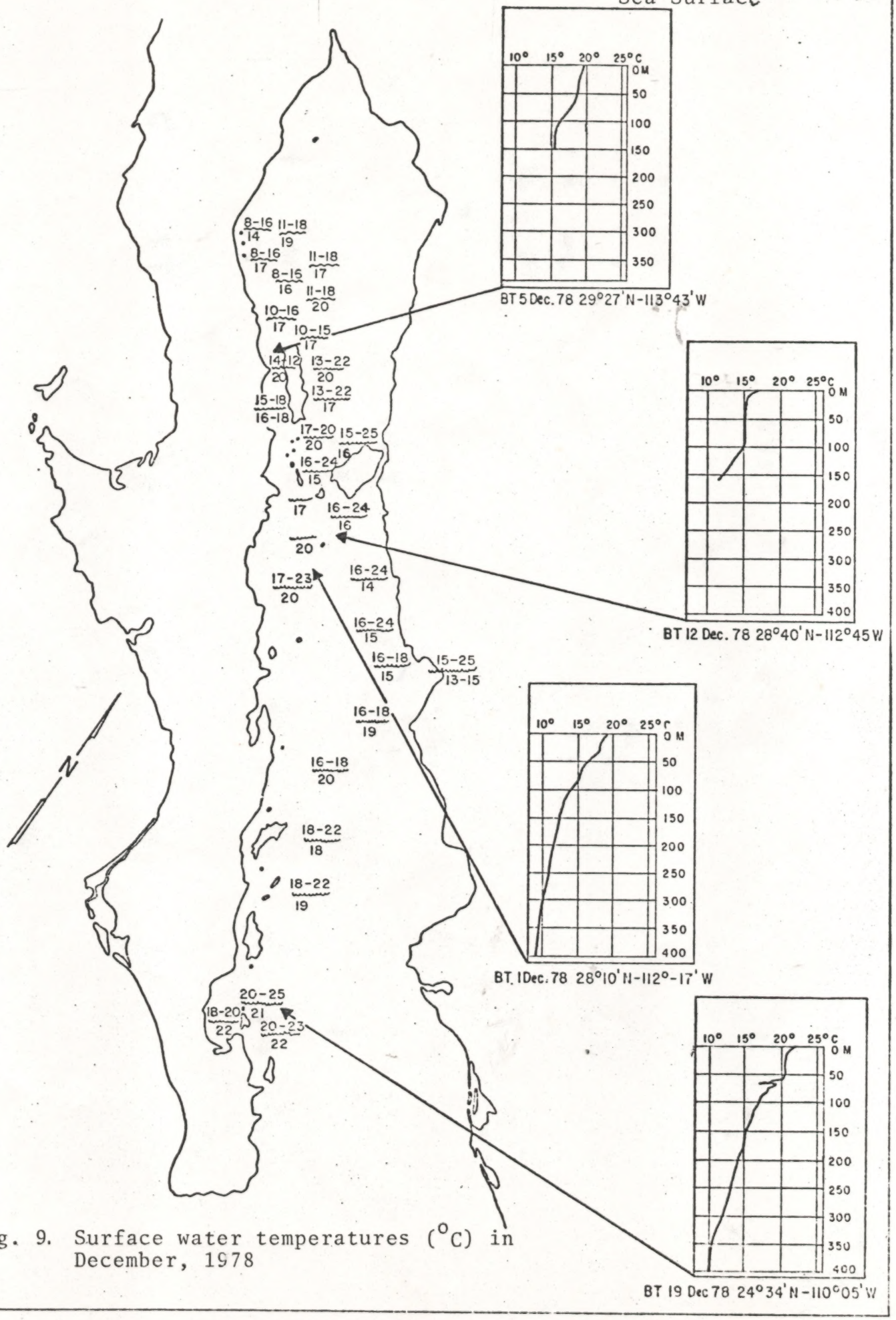


Fig. 9. Surface water temperatures (°C) in December, 1978